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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,677	06/11/2001	Jeff Hsieh	PHN 17,803	2022
24737	7590	03/15/2006	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			TRAN, NHAN T	
			ART UNIT	PAPER NUMBER
			2615	
DATE MAILED: 03/15/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/878,677

Applicant(s)

HSIEH ET AL.

Examiner

Nhan T. Tran

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's argument filed 12/1/2005 with respect to specification headings has been fully considered and is persuasive. Accordingly, the objection to the specification is withdrawn.
2. Applicant's arguments filed 12/1/2005 with respect to claims 1-9 and new claims 10-20 have been fully considered but the arguments with respect to claims 1-13 & 15-20 are not persuasive.

Regarding each of independent claims 1, 9 & 12, the Applicants assert that Hsieh does not teach or suggest the features of a number of columns of the sensor array corresponding to different colors are shared by a same processor of said processor array (Remarks, page 17).

In response, the Examiner respectfully disagrees. As disclosed in **Figure 1** and **section 2** in Hsieh, the CMOS image sensor array consists of **640** x 480 pixels and the Xetal processor array is composed of **320** processing elements (PEs). It is clear that 640 columns of the image sensor must share 320 processing elements. From a technical view of such structure, at least two columns are shared by one processing element (PE) to form the integrated Xetal/TSM architecture as shown in Fig. 1. Hsieh also discloses that the CMOS image sensor array is implemented with a **RGB Bayer color filter** (see Abstract and table 1). Thus, by inherency of RGB arrangement in the

Art Unit: 2615

Bayer pattern, two columns of the image sensor array must contain different colors, for example:

R G R G R G...
G B G B G B...
R G R G R G...

Therefore, the present claimed invention is met by the disclosure of Hsieh including the features of a number of columns of the image sensor array corresponding to different colors being shared by a same processing element of the processor array.

In view of the above, the rejection of claims 1-9 is maintained. New claims 10-13 & 15-20 are also rejected as set forth below.

Specification

3. Replacements of title, abstract and specification submitted on 12/1/2005 are accepted.

Priority

4. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Europe on 12/10/1999. A claim for priority under 35 U.S.C. 119(a)-(d) **cannot** be based on said application since the United States application was filed *more than twelve months* thereafter.

It is also noted that applicant has not filed a certified copy of the European application No. 99204181.4 as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-13 & 15-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Hsieh et al (Transpose Memory for Video Rate JPEG Compression on Highly Parallel Single-Chip Digital CMOS imager, IEEE Proceedings, September 10-13, 2000).

Regarding claim 1, Hsieh discloses a parallel data processing device comprising:
a sensor array for obtaining a signal (CMOS sensor array shown in Fig. 1),
an array of parallel processing elements (PE1-PE320 or Xetal processor array shown in Fig. 1) for processing the signal to obtain parallel streams of data (see sections 1 and 2 in Hsieh);

means (TSMM1-TSMM80) for shuffling (by virtue of crossbar switches) the parallel streams of data in a block-wise manner (see Fig. 2, section 3 for TSMM architecture), wherein a number of columns of the sensor array corresponding to different colors are shared by a same processing element of said array of parallel processing elements (see Fig. 1, abstract and section 2, wherein two columns of the sensor array corresponding to different colors in Bayer pattern are shared by one processing element PE since there are 640 columns but only 320 processing elements are implemented).

Regarding claim 2, Hsieh also discloses that the data shuffling means (TSMM1-TSMM80) comprise an array of addressable switch memory matrices (4x4 16-bit registers as shown in Fig. 2) which are coupled to a predetermined number of said processing elements (PE1-PE320). See section 3 for TSMM architecture.

Regarding claim 3, Hsieh further discloses that each switch memory matrix (4x4 16-bit matrix) comprises: a matrix of registers (10b); and a crossbar switch having a row-wise buses and column-wise buses being provided with switches (see Fig. 2), each register (10b) coupled to one row-wise bus and one column-wise bus of the crossbar switch, each column bus coupled to a processing element of said array of parallel processing elements (PE1-PE320). See section 3 for TSMM architecture.

Regarding claim 4, it is clear that each switch memory matrix is a square matrix (a 4x4 matrix) described in section 3 for TSMM architecture.

Regarding claim 5, since two TSMMs are linked together as shown in Fig. 1, they are coupled two by two to each other.

Regarding claim 6, also disclosed by Hsieh is that the processing element (PE1-PE 320) comprises an accumulator, the accumulators of the predetermined number of processing elements being selectively addressable (see Fig. 1 and section 2).

Regarding claim 7, see the analysis of claim 1. Furthermore, Hsieh clearly discloses a digital CMOS camera (see section 1) comprising the parallel data processing device as analyzed in claim 1 for processing the signal (see section 2).

Regarding claim 8, it is clear that the CMOS sensor array is provided with RGB color filter array in Bayer pattern (see Abstract and Table 1).

Regarding claim 9, method claim 9 is corresponding to apparatus claim 1 and thus the same analysis is applied.

Regarding claim 10, it is seen that the sharing processor architecture shown in Fig. 1 and section 2 of Hsieh is constructed for RGB Bayer color filter of the sensor array (see claim 1). Thus, Hsieh also anticipates that the sensor array is provided with a color filter array (RGB color filter in Bayer pattern), and wherein the number of columns (i.e., 2 columns as analyzed in claim 1) that are shared by the same processor (one processor PE) depends on the color filter array.

Regarding claim 11, this claim is analyzed in the same manner as provided in claim 10 with an additional note that the Bayer pattern of RGB color filter inherently populates different colors in a row, wherein a number of different colors in a row is typically two (see Examiner's response to arguments above).

Regarding claims 12 & 13, see the analyses of claims 1 & 10, respectively.

Regarding claim 15, see the analysis of claim 11.

Regarding claims 16-20, see the analyses of claims 2-6, respectively.

Allowable Subject Matter

6. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or fairly suggest "said number of columns is two when said color filter array includes two different colors in a row; and said number of columns is three when said color filter array includes three different colors in a row."

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 09/878,677
Art Unit: 2615

Page 9

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TUAN HO
PRIMARY EXAMINER